Remarks

The specification has been amended at page 10, line 23 to improve the description of an overall 2-3 upshift.

Claims 1, 5, and 9 are the only claims presently included in the application. The other claims have been withdrawn in view of an earlier restriction requirement. Claims 1 and 5 have been allowed. Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakawaki et al. in view of Rosi et al.

The Examiner has indicated that the Nakawaki et al. transmission does not disclose a swap-shifting method. Applicants agree with that interpretation. The rejection relies upon the teachings of Rosi et al. to supply the swap-shifting method that is lacking in the Nakawaki et al. reference.

To support the rejection based on 35 U.S.C. § 103(a), the Examiner applies the language of claim 9 to the Rosi et al. reference. In doing this, however, the Examiner has assumed that the Rosi et al. reference has two gearsets, one element of one gearset being controlled simultaneously with one element of a second gearset. Actually, the Rosi et al. teachings do not specify that the shift control of the Rosi et al. device is a swap-shift transmission with two independent gearsets. Column 3, which is indicated by the Examiner to describe a swap-shift transmission, does not in fact describe a transmission that would correspond to Applicants' transmission where a multiple ratio gear unit and a two-speed ratio gear unit are used in series and wherein the gear units are distinct, one from the other.

The Rosi et al. invention describes an adaptation of friction element pressure applied to an oncoming friction element as the offgoing friction element is released. The strategy of the Rosi et al. method typically would be applied to a transmission in which a shift is effected by disengaging one friction element and engaging a second friction element in the same gear assembly. The pressures on the ongoing friction element and on the offgoing

friction element are controlled and are adapted during a given ratio shift so that a second shift can occur without the disengaging clutch losing torque too soon or too late. The disengaging friction element loses pressure as indicated in Figure 2 of the Rosi et al. patent. The engaging friction element gains torque transmitting capacity as the pressure on the engaging friction element increases as shown in Figure 3. Those friction elements typically would be located in a single gearset rather than in a swap-shift transmission.

Notwithstanding these distinctions, Applicants have amended claim 9 to include other features of the Applicants' control method that are neither disclosed nor suggested by the teachings of Rosi et al. and the teachings of Nakawaki et al., taken alone or in combination. The amendments to claim 9 includes recitals of the first, second, and third speed sensors that supply data for use in controlling friction element command pressure for the second gear set of a speed based control system. There is nothing in the description of the Rosi et al. control system that would indicate any comparable speed based control characteristic is present. Although the Rosi et al. method would rely on the turbine speed and the difference between synchronous speed and the turbine speed, that is done only to indicate whether the disengaging clutch is opening too soon or too late. If there is an error in the disengaging time, the engaging pressure is changed for a subsequent gear shift.

A further distinction between claim 9 in its presently amended form and the teachings of Rosi et al., taken alone or in combination with the teachings of Nakawaki et al., resides in the control step of using a closed-loop control that relies upon shift progression rate of the multiple ratio gearset to develop a variable for a closed-loop control of the command pressure. Speed information from the three speed sensors identified in claim 9 is used in carrying out a closed-loop control of the command pressure. This is described in Applicants' specification including the description at the bottom of page 13, beginning at line 23 and continuing to page 14 through line 18, as well as elsewhere in the specification. This feature is neither shown nor suggested by the cited references. Indeed, the distinguishing features of the method of claim 9 could not be applied to a transmission such as the transmission disclosed in the references because there is no separate control described in the references for controlling

friction elements for separate gearsets during an overall shift interval where a shift progression rate for a multiple ratio gearset is used to develop a feedback variable in a closed-loop pressure control.

It is respectfully requested that claim 9 be grouped with the allowable claims 1 and 5 and that a Notice of Allowance be issued.

Respectfully submitted,

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